One method for accomplishing that projection is described herein, using the coffee cup example. First, the surface of the coffee cup may be described mathematically. Ignoring the cup handle, the cup can be modeled as a cylinder with, for example, a 2-inch radius and a 4-inch height. Using the standard (r, theta, z) cylindrical coordinate system (see, for example, "Calculus with Analytical Geometry", authored by Howard Anton, and published by Wiley, New York, 1980, p. 875), a cylinder is described by (r=2, 0 degrees < theta <= 360 degrees, 0 <= z <= 4). Next, the position of the display screen that contains the image may be described. In the mathematics language, the screen is equivalent to a plane. In this description, suppose the screen is placed directly in line of sight between an imaginary viewer and the cup, with the screen 4 inches from the cup and square to the viewer. Suppose further that the size of the image on the screen is two inches high by two inches wide. The simplest description for the screen, using the standard (x,y,z) Euclidean coordinates, is (x=2, 1 <= y <= 3, 1 <= z <= 3). Next, a set of rays may be described that will pass through the screen until they intersect the cup. There must be one ray for each pixel. Continuing the example above, the ray passing through the center of the image is described by (z=2, y=0, $-\infty$ < x < ∞). Repeating this for each pixel of the image, each ray casts a pixel from the image to the cup, completing the projection and updating the representation of the cup to contain the image as intended.

It is important to note that this is just one method for accomplishing the projection; one skilled in the art of computer graphics – for instance, a developer

of 3D game software - would be expected to apply any of a number of techniques for improving the speed of computation and the quality of this projection.

When the article of merchandise is in other shapes or forms, other appropriate well-known mathematical functions may be used to perform the projections.

At 308, a composite image may be produced, with the surface projection of the personalizing content superimposed on the image of the article of merchandise. At 310, the composite image may be provided to the client device for display to the consumer, providing the consumer with a realistic representation of how the personalized item will look once it is manufactured and personalized. In one embodiment, a web page including the composite image may be sent to the consumer's client device. At 312, the consumer may approve or reject the personalized article of merchandise. Once approved, at 314, the consumer may select to purchase the personalized article of merchandise. At 316, the purchase request for the merchandise as personalized is fulfilled by concluding the electronic commerce transaction and shipping the personalized merchandise to the consumer.

In one embodiment, the personalized article of merchandise may be the composite image rather than the physical article. In this case, the consumer may purchase or otherwise receive the composite image (in either electronic or tangible form). In another embodiment, the above process may be performed in person and in real-time. For example, a consumer may be in a shopping mall or store, a vendor may scan the consumer's photograph, and the vendor may show

the consumer immediately what the article of merchandise will look like prior to actual production of the personalized merchandise. In this case, a vendor may have a personal computer system and scanner with associated software to implement the present invention.

Figure 5 shows a system 700 for supporting presentation of personalized merchandise in an electronic commerce transaction in accordance with an embodiment of the present invention. System 700 comprises a processor 702 coupled to a controller 704 by way of a processor bus 722, commonly referred to as a front side bus. Bus controller 704 is coupled to memory 706 via memory bus 724. Bus controller 704 is also coupled to various peripheral devices such as mass storage 714, network interface 726, and display 708 via I/O bus 728. Network interface 726 provides apparatus 700 with access to networks such as the Internet or corporate intranets. Memory 706 stores a software embodiment 734 to perform operations to implement the presentation of a personalized good to a consumer in an electronic commerce transaction as herein described and in accordance with the present invention. Software 734 may be stored in memory 706 in a form suitable for access and execution by processor 702. An archived loadable form 736 of software 734 may be stored by mass storage 714 for loading into memory 706 for execution by processor 702. Mass storage 714 may comprise any form of non-volatile memory including hard drives, CD ROM drives, ZIP drives, diskettes, and so on.

Memory 706 is typically a form of random access memory (RAM) such as a DRAM, flash memory, SDRAM, and so on. Memory 706 supplies the